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TITLE : ACTIVE MATERIAL FOR LITHIUM BATTERY

ABSTRACT : PROBLEM TO BE SOLVED: To enhance capacity by constituting an active material of Li, Cu, P and O elements of the specific ratio.

SOLUTION: An active material is expressed by a chemical formula  $(\text{LiCu}_{1-x}\text{PO}_4)$ . Here,  $(0 \leq x \leq 1)$  is realized. In this active material, a crystal system is an orthorhombic system in  $(0.5 < x < 1)$ , and a unit lattice constant of its crystal lattice is  $(a=5.31 \pm 0.5$ , and  $b=13.43 \pm 0.5$  and  $c=4.91 \pm 0.5)$  in an angstrom unit. Such an active material is manufactured by heating it in two stages at  $450^\circ\text{C}$ , then, at  $800^\circ\text{C}$  after pressurizing/molding them into a pellet shape under pressure of  $400 \text{ kgf/cm}^2$  by mixing them in the stoichiometric ratio of  $\text{Li}_2\text{CO}_3$ ,  $\text{CuO}$  and  $(\text{NH}_4)_2 \text{HPO}_4$ . A battery is composed of a positive electrode having this active material, an electrolyte and a negative electrode being Li, an Li alloy,  $\text{Li}_x\text{SnO}_2$ , carbon and/or a graphite material. To put it concretely, a battery having high capacity such as  $600 \text{ mAh/g}$  is obtained.

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